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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/944,648 | 08/31/2001 | Thomas Edward Dinan | SJO9-2000-0009US1 | 1799 |

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INTELLECTUAL PROPERTY LAW OFFICE
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| EXAMINER | |
|---|---|
| CHEN, TIANJIE | |
| **ART UNIT** | **PAPER NUMBER** |
| 2652 | 15 |

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/944,648 | DINAN ET AL. | |
| | Examiner | Art Unit | |
| | Tianjie Chen | 2652 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10 and 19-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,19-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

# *Non-Final Rejection (RCE)*

## *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/12/2004 has been entered. Claims 1-10 and 19-24 are pending.

## *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6, 7, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohtsuka et al (US 5,774,308).

With regard to claims 1, 6, and 19, Ohtsuka et al shows a magnetic head in Fig. 7 including: a substrate 21; a read head 22 (Column 7, line 47) being fabricated upon the substrate; a Pl pole 24 (Column 7, line 37) being fabricated upon the read head; a write gap layer 27 being fabricated upon the P1 pole; a P2 pole tip 26 being fabricated upon portions of the write gap layer, wherein the P2 pole tip includes a base surface 26c that is disposed upon the write gap layer 27 and a side wall surface 26b that is disposed generally perpendicularly to the base surface, and wherein the base surface

and the side wall surface are comprised of an integrally formed of P2 pole tip seed layer material FeN.

With regard to claims 1 and 6, Ohtsuka et al further shows that the P2 pole tip includes a first portion being comprised of a seed layer material 26C (Fig. 7) and a second portion 26a being comprised of electroplated material, and wherein the P2 pole tip has a thickness dimension t, and a base having a width dimension W, and wherein the seed layer 26C is comprised of an integrally formed layer of material that forms the base 26C and a sidewall 26b of the p2 pole tip that extends through the thickness t of the p2 pole tip.

With regard to claims 2 and 7, Ohtsuka et al further shows the first portion of the P2 pole tip that is comprised of the seed layer material 14 forms a sidewall of the P2 pole tip.

With regard to claim 20, Ohtsuka et al further shows that the base surface defines a width W of the P2 pole tip and the sidewall defines a thickness t of the P2 pole tip.

With regard to claim 21, Ohtsuka further shows that the P2 pole tip further includes an electroplated material portion 26a, and wherein the electroplated (Column 6, lines 24-26) material portion is formed in part upon the sidewall surface seed layer material.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 3-5, 8-10, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al in view of Honjo et al (US 6,466,416).

With regard to claims 3, 4, 8, 9, and 22 and 23, Ohtsuka et al further shows the seed layer material is formed with a thickness of 0.1 micron (1000 Å; column 7, lines 56-58) and the electroplated material having thickness of 3 microns (30000 Å; column 7, lines 59-65); but does not show the seed layer material thickness is approximately 50 Å to 500Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å).

However, Honjo et al shows a magnetic head, wherein the seed layer material 14 is formed with a thickness of 100 Å (column 12, lines 31-32), which is approximately 50 Å to approximately 500 Å, and the electroplated material 11 is formed with a thickness of 5000 Å (Column 12, lines 43-44).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the following rage: the seed layer material thickness is approximately 50 Å to 500Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å). The rationale is as follows: Applicant does not specify a particular reason for use this particular thickness. One of ordinary skill in the art would have been determining the suitable thickness through experimentations and optimization. Ohtsuka et al's patent was filed in 1996, which is much earlier than the time this invention was made. Thinning the thickness to upgrade the data rate is a well-known trend in the art. Honjo has taught of using thinner thickness of the layers and teaches that the seed layer material thickness

should falls in the range of more then 50 Å and less 1000 Å for balancing the good layer quality and the writing capability (Column 12, lines 33-42). One of ordinary skill in the art would have been motivated by Honjo et al's teaching and follow the trend in the art to find a suitable thickness through experimentation and optimization, which would include the following range: the seed layer material is formed with a thickness approximately 50 Å to 500Å (or 250 Å) and the electroplated material thickness is approximately 100 Å to 5000 Å (or 1500 Å).

With regard to claims 5, 10 and 24, Ohtsuka et al shows the seed layer material is made of FeN film with high saturation magnetic flux density 0f 2 T (Column 5, lines 49-58) and the electroplated material 26c is made of NiFe (Column 7, lines 56); but fails to show that the seed layer material is comprised of NiFe.

Honjo et al shows that CoNiFe, which is comprised of NiFe, has high saturation magnetic flux density of 1.9-2.2 T (Column 5, lines 18-19).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include CoNiFe as a candidate for the seed layer. The rationale is as follows: in Ohtsuka et al, the seed layer needs to have high saturation magnetic flux density of 2T, CoNiFe has saturation magnetic flux density of 1.9–2.2 T. One of ordinary skill in the art would have been motivated to include CoFeNi as a material for the seed layer.

***Response to Arguments***

4. Applicant's arguments filed 02/14/2004 have been fully considered but they are not persuasive.

Applicant's argument is based on that "Applicant's pole tip is fabricated (sideways electroplating) is distinctly different from the method by which the prior art's pole tips are fabricated (upwards electroplating)" (p.8; lines 13-15).

However, Applicant's claims are "product by process" claims. A "product by process" claim is directed to the product per se, no matter how actually made, see In re Hirao, 190 USPQ 15 at 17 (footnote 3 CCPC, 5/27/76); In re Brown, 173 USPQ 685 (CCPA 5/18/72); In re Luck, 177 USPQ 523 (CCPA, 4/26/73); In re Fessmann, 180 USPQ 324 (CCPA, 1/10/74); In re Thorpe, 227 USPQ 964 (CAFC, 11/21/85). The patentability of the final product in a "product by process" claim must be determined by the product itself and not the actual process and an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. In instant case, as far as the layers in the end product is integrated together. The limitation is met. The method portion does not gain weight in determining patentability.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is (703) 305-7499. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen Tianjie 01/29/04

TIANJIE CHEN
PRIMARY EXAMINER